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Adequacy Of Physical Resources And Effective Implementation Of Competence Based Curriculum In Tharaka Nithi County, Kenya.

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Abstract
Countries all over the globe are engaged in curriculum reforms to incorporate competencies into their education systems. The intention is to equip learners with the knowledge, skills and competencies needed to succeed in the twenty first century. The purpose of this study is therefore to assess the relationship between the adequacy of physical resources and effective implementation of competence based curriculum (CBC) in public primary schools in Tharaka Nithi County, Kenya. The study adopted descriptive survey research design and correlational research design. This study was guided by Individualized Theory developed by Fred Keller Gilmour Sharman (1968) and System Theory of Management founded by Ludwig Von (1968). A sample of 333 participants took part in the study. To gather information from the respondents for the study. A questionnaire and interview schedule were employed to collect data. Quantitative data was analysed by use of descriptive statistics whereas qualitative data were subjected to thematic analysis. Data was analysed with the aid of statistical Package for Social Science (SPSS Version 26. Hypotheses were tested using linear regression statistics at alpha =0.05 significant level. The study findings indicated there was inadequate physical facilities which negatively affect effective implementation of CBC and that there was a statistically significant relationship between adequacy of physical resources and effective implementation of competence based curriculum. The study recommends that government should provide adequate physical resources to all public primary schools to ensure successful implementation of competence based curriculum.

Keywords: *Curriculum, Competence, Competence Based Curriculum, Implementation, Physical Resources.*

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I. Background Information

Material resources are fundamental for implementing Competence Based Curriculum (CBC) effectively (Erden,2010). Thus, to achieve quality education sufficient physical resources, need to be availed to all learning institutions since they determine students' academic achievements (Yara & Otieno, 2010). According to Ayuba and Gatabazi (2010), inadequate physical resources affect curriculum implementation. This argument is supported by Dasman (2011) assertion that lack of contemporary instructional materials severely hinders the teaching process, which prevents students from acquiring practical skills as a result of unsatisfactory instruction delivery. The successful implementation of training and teaching programs is also severely hampered, as Maino (2013) highlights, by the inadequate provision of physical resources and outmoded equipment. Teachers' utilization of relevant equipment, materials, and tools in teaching facilitates learning enhances students' academic performance. Tshabakla and Ncube (2014) argue that appropriate equipment, materials, and tools such as workshops, laboratories, lecture rooms, and relevant texts are required in the teaching and learning process to yield the intended educational outputs.

A study on factors impacting curriculum implementation for students was conducted in India by Chaudhary (2015), and the results highlighted the value of governmental and educational management engagement in the provision of necessary physical resources, such as sports fields, workshops, libraries, classrooms, labs, and relaxation places. The central government must allocate physical resources such workshops, libraries, classrooms, labs, and playing fields to create an atmosphere that is suitable for the proper execution of

the curriculum. Additionally, the study underlined how important it was to have top-notch tools and materials in order to successfully implement the program. As a result, the purpose of this study is to determine if Kenyan public primary schools have enough physical resources to implement the Competence Based Curriculum (CBC) successfully.

In Nigeria Osarenren and Irabor (2012) study to access the availability and adequacy of human and material resources for teaching skill-based courses in Nigerian public universities found that human and physical resources for the teaching and learning skilled based courses were inadequate. The study concluded that citizens, non-governmental groups, and the government should all contribute both human and material resources. Further, Amadi and Ezeugo (2019) study on physical resource availability and students' academic performance in the Universal Basic Education Scheme in River State, Nigeria established that to promote efficient and effective teaching and learning, both teachers and students need certain facilities, such as libraries, labs, well-constructed buildings, sufficiently equipped classrooms, a dependable water supply, bathroom facilities, and a secure atmosphere. More so, a research by Acquah, Frimpongo, and Kwame (2017) in Ghana to establish the challenges faced in implementing CBC training programs in training institutions found that CBC implementation was ineffective in some training institutions because of lack of infrastructure development.

Further, a case study on the relationship between a schools' profile and its capacity to implement CBC conducted in Rwanda by Mugabo, Ozawa, and Nkundabakura's (2021) recommended the provision of adequate infrastructural resources to ensure successful implementation of competence based curriculum. Moreover, Ndayambaje (2018) study found a dearth of adequate teaching and learning resources as a pivotal factor hindering the successful implementation of CBC in primary schools within Rwanda. In Tanzania Makunja (2016) study with the aim of examining the challenges faced by educators in implementing CBC reveal that to facilitate successful CBC implementation physical resources should be made available. Similar to this, Kanyonga, Mtana, and Wendt (2019) carried out a thorough analysis of the adoption of competence based curriculum in technical colleges in Arusha, Tanzania. The findings emphasis the important of supplying Technical and Vocational Education and Training(TVET) institutions with the tools and infrastructure required to promote the transfer of knowledge and abilities to the learners.

Isaboke, Wambiri, and Mweru (2021) research in Kenya to examined the difficulties of implementing a Competence based curriculum in an urban setting, with an emphasis on the difficulties faced by teachers in public pre-primary schools in Nairobi City County. The study found that lack of necessary physical resources and instructional materials greatly hinders the implementation of competence based curriculum. According to Ngeno, Mweru, and Mwoma (2021) study with the goal of evaluating the physical infrastructure needed for the successful implementation of the Competence Based Curriculum (CBC) in Kericho County public primary schools. The study findings showed that there is a need to increase funds to enable schools to construct physical facilities. Similar research was conducted in Ruiru, Kenya, by Nturibi (2015) to examine the impact of school infrastructure on student academic achievement. The study induced that public schools had ill-equipped libraries hence the need to improve and equip libraries. A study by Wambua an Waweru (2019) in Machakos County, Kenya. showed that many schools in the area struggled with problems like poor laboratory, lack of learning and teaching materials. It is the responsibility of the government and school management to ensure that adequate material resources are made available to schools. This will enable the schools to equip their learners with relevant skills and enhance teachers and student's performance. According to Akinsanye (2010), educational resources are necessary because schools depends on adequate supply and utilization of physical resources to enhance teaching and learning.

II. Statement of the Problem

Typically, each country endeavours to develop a well prepared younger generation that meets the specific needs of the nation. To achieve this objective, the education curriculum systems undergo regular revisions to adapt to ever changing market conditions. Consequently, it is the responsibility of education managers to ensure that the learning materials align with the current education system and global demands of learners. In Kenya, the implementation of the Competence Based Curriculum (CBC) began in January 2017 with the aim of nurturing students' talents. However, concerns have been raised by various education stakeholders regarding its effective implementation particularly on provision of sufficient teaching and learning materials. The successful implementation of CBC in classrooms necessitates adequate space, facilities, and equipment, Continuous implementation of the competence based curriculum without due consideration of its essential requirements may jeopardise the intended objective. Therefore, it is essential to gather concrete evidence regarding its successful implementation in Kenyan educational institutions Thus, the objective of this study was to investigate any potential connections between adequate physical resources and successful implementation of competence based curriculum.

III. Objective of the Study

The objective of this study was assess the relationship between the adequacy of physical resources and effective implementation of a competence based curriculum in Tharaka Nithi County.

IV. Research Hypotheses

This study sought to test the following hypothesis at a significance level of =0.05:
Ho: There is no statistical significant relationship between the adequacy of physical resources and the effective implementation of a Competence Based Curriculum in Tharaka Nithi County, Kenya

V. Methodology

A descriptive research design and a correlational research design were adopted for the study. Primary data was collected through questionnaires and interviews with focal persons in the implementation of CBC. Through cluster sampling, 109 primary schools were identified to take part in the study. The study had a sample size of 333 participants comprising 109 head teachers, 218 teachers, 3 Teachers Service Commission sub county directors, and 3 sub county directors of education. Validity of the study was ensured through expert's opinions while reliability of the instruments was enhanced through a pilot study conducted in Embu county, Kenya. Pearson correlation coefficient of 0.732 was obtained which was considered appropriate for the study. Data was analyzed using Statistical Packages for Social Sciences (SPSS) for inferential statistics.

VI. Results and Discussions

The following are results of the study

Adequacy of Physical Resources and Effective Implementation of CBC

Through the study, the researcher wanted to know whether there were enough physical resources in Tharaka Nithi County, Kenya, to implement CBC effectively. The research instrument addressed several aspects that could measure the adequacy of physical resource for effective of implementation of CBC. The research variables are measured by a Likert scale to evaluate the respondents' agreement with the propositions. The scale variables were: Very adequate (5); Adequate (4); No opinion (3); Inadequate (2); Very inadequate (1). Head teachers' and teachers' findings are presented in Table 4 and 5.

Table 1: Head Teachers' Responses on the Adequacy of Physical Resources

Physical Resource	VA		A		NO		I		VI		Total
	F	%	F	%	F	%	F	%	F	%	%
Classrooms	20	18.3	43	39.4	1	0.9	36	33.0	9	8.3	100
Furniture	11	10.1	29	26.6	4	3.7	50	45.9	15	13.8	100
Playground	17	15.6	37	33.9	5	4.6	38	34.9	12	11.0	100
Learning/Teaching Aids	3	2.8	15	13.8	8	7.3	65	59.6	18	16.5	100
Laboratories	6	5.5	5	4.6	10	9.2	35	32.1	53	48.6	100
Land	21	19.3	33	30.3	7	6.4	35	32.1	13	11.9	100
Offices	8	7.3	35	32.1	5	4.6	42	38.5	19	17.4	100
Textbooks	9	8.3	60	55.0	2	1.8	32	29.4	6	5.5	100
Reference books	3	2.8	33	30.3	6	5.5	51	46.8	16	14.7	100
Computers	6	5.5	13	11.9	8	7.3	60	55.0	22	20.2	100
Computer rooms	7	6.4	10	9.2	3	2.8	48	44.0	41	37.6	100
Music rooms	2	1.8	9	8.3	5	4.6	39	35.8	54	49.5	100
Toilets	14	12.8	40	36.7	10	9.2	37	33.9	8	7.3	100
Water	13	11.9	51	46.8	9	8.3	29	26.6	7	6.4	100
Electricity	17	15.6	55	50.5	8	7.3	20	18.3	9	8.3	100
Library	2	1.8	9	8.3	9	8.3	46	42.2	43	39.4	100
Workshops	4	3.7	5	4.6	9	8.3	43	39.4	48	44.0	100
Bookstores	6	5.5	13	11.9	10	9.2	45	41.3	35	32.1	100
Nutritional laboratories	1	0.9	2	1.8	14	12.8	32	29.4	60	55.0	100

VA=Very Adequate; A=Adequate; NO=No Opinion; I=Inadequate; VI=Very Inadequate

Table 4 shows that majority (57.7%) of the respondents reported that classrooms were adequate while 41.3% 0f the respondents stated that classrooms were inadequate. The findings concur with Ngeno (2021) observation that classrooms were adequate in majority of schools. However, the findings disagree with Nturibi (2015) who observed that schools had insufficient classrooms leading to overcrowded classroom and in poor condition. The study findings establish that majority (59.7%) of the respondents asserted that furniture was inadequate for effective CBC implementation. In contrast, 36.7% of the respondents pointed out that furniture was adequate for effectively implementing CBC. The current study established that there was inadequate furniture

in public primary schools, thus affecting successful implementation of competence based curriculum. On adequacy of the playground 45.9% of the respondents asserted that the playground was inadequate, while 49.5% of the respondents reported that playground was adequate. The results of the present study disagree with Ngeno (2021), who found that there were insufficient playgrounds in public primary schools, which had an impact on sports and other outdoor activities. Consequently, competence based curriculum implementation may not be effective. It is crucial that schools provide a sufficient playground where students can nurture their talents.

Further, the results reveal that teaching and learning aid were inadequate for successful implementation of CBC. Majority (76.1%) of the respondents stated that teaching and learning aids were inadequate. However, 16.6% of the respondents said that teaching and learning aid was adequate. These findings concur with Mugabo, Ozawa and Nkundabakura (2021) who identified that inadequacy of teaching and learning aid negatively affect effective implementation of CBC. The same revelation correlate with the findings by Ndayambaje's (2018) postulation that insufficient teaching and learning aid in schools affect effective implementation of CBC negatively. Though one of the sub counties directors of education stated that teaching and learning resources ought to be adequate in all public primary schools as he stated that; "*most of the CBC teaching and learning resources are supposed to be home made so depending on the motivation and innovativeness of the individual teachers they are supposed to be adequate because teachers are required to use the locally available resources to improvise them"* On the adequacy of laboratories, a majority (80.7%) of the respondents indicated that laboratories were inadequate for effective CBC implementation. However, a small percentage (10.1%) of the respondents observed that laboratories were adequate for the effective implementation of CBC. This finding is in concurrence with Ntubiri (2015) establishment that laboratories among other resources were inadequate in most of public primary schools, thus, affecting effective implementation of competence based curriculum.

According to the research's findings, the majority of respondents (44.0%) believed there wasn't enough land to successfully execute the CBC program. On contrast, 49.6% of the respondents indicated that land was adequate. From the findings land was adequate in most of the public primary schools for successful implementation of competence based curriculum. The finding disagrees with Ngeno (2021) postulation that there was inadequate land for agriculture in most public primary schools and a number of primary schools shared the same land with their neighboring secondary schools limiting sports and agricultural activities. Sufficient land for agricultural activities is very important since agriculture is a compulsory subject besides being a practical subject. In terms of the offices suitability for the efficient implementation of CBC, the results show that most respondents (55.9%) believed that the offices were insufficient. This is contrary to 39.4% of others who asserted that offices were adequate for the effective implementation of CBC. The study findings reveal that office space was not sufficient to enable CBC curriculum to be implemented effectively. On adequacy of textbooks for effective implementation of CBC majority (63.2%) of the respondents stated that textbooks were adequate, contrary to 34.9% who said they were inadequate. The findings posit that public primary schools have adequate textbooks, this finding is supported by both TSC sub county directors and sub county directors of education who stated that schools have adequate textbooks.

Information in Table 4 further reveal that majority of the participants (61.5%) indicate reference books for the effective implementation of CBC were insufficient. In contrast, reference books were deemed adequate for the successful implementation of CBC by 33.1% of the respondents. From the findings reference books in public primary schools were inadequate while textbooks were adequate. Sufficient provision of both textbooks and reference books is essential for effective implementation of competence based curriculum. Pertaining to the adequacy of computers for effective implementation of CBC majority (75.2%) of the respondents asserted that computers were inadequate for the effective implementation of CBC. Comparatively, 17.4% of the respondents reveal that computers were adequate. These findings concur with a research by Njeru and Itegi (2018) conducted in Tharaka Nithi County who found that schools had inadequate computers. Also the findings correlate with Kiugu, Kibaara and Wachira (2021) study conducted in Meru County who established that schools had insufficient digital teaching and learning devices, this study further observed that inadequate digital devices could lead to teachers developing negative attitude that could affect CBC implementation negatively. These findings agree with Mwendwa (2018) study in Kitui county report that 96.1% of public primary schools in Kitui County had insufficient computers, hence, affecting infusing digital literacy to learners. The study postulated that 81.6% of the respondents induced that computer rooms are inadequate in public primary schools, while (15.6%) of the respondents postulated that computer rooms were adequate. In support of this argument Keiyoro (2011) argues that failure to provide adequate digital teaching and learning resources can negatively affect infusing of digital literacy to the learners and lower the quality of digital learning. Therefore, it is vital for the government to provide adequate digital resources including computer rooms.

The results suggest that 85.3% of the respondents said that music rooms were insufficient and (10.1%) of the participants induced that music rooms were adequate for successful implementation of CBC. As a result, the government should build suitable music rooms in public primary schools to ensure that competence based curriculum is implemented successfully. Concerning the adequacy of toilets for the effective implementation of

CBC majority (49.5%) of the respondents indicated that toilets were adequate for the effective implementation of CBC. Additionally, 41.2% stated that toilets were inadequate. Sanitation facilities are very important not only in educational institutions but the whole society, therefore, there adequacy is very crucial especially in public primary schools. Regarding the adequacy of water for the effective implementation of CBC majority (58.7%) of the respondent asserted that water was adequate for the effective implementation of CBC, while to 33.0% of the respondents argued that the water was inadequate for effective implementation of CBC. On whether power was sufficient for the effective implementation of CBC, the majority (66.1%) of the respondents felt that it was. While 26.6% of the respondents felt that electricity was insufficient for the effective implementation of CBC. According to the results, 81.6% of respondents believe that libraries are insufficient. A small number of the respondents 10.1% indicated that libraries were adequate. Libraries are very essential in schools; well-equipped libraries are necessary for effective implementation of CBC. Both teachers and learners require libraries, teachers use libraries in preparation of teaching notes and lessons preparation while learners require libraries to assist them in writing repots and doing assignments. Further, on the adequacy of workshops 83.4% of the respondents stated that the workshops were inadequate. However, 8.3% of the respondent's stated that the workshops were adequate. Workshops are necessary for instructors to be able to instill CBC capabilities in students to execute competence based curriculum effectively. Moreover, on the sufficiency of bookstores for the effective implementation of CBC 73.4% of the respondents stated that bookstores were inadequate. However, a small percentage of the respondents 17.4% indicated that bookstores were adequate. Regarding the adequacy of nutritional laboratories for the effective implementation of CBC majority (84.4%) of the respondents opined that nutritional laboratories were inadequate for the effective implementation of CBC. A small number (2.7%) of the survey sample stated that nutritional laboratories were adequate.

The study further sought to establish teachers' views on the adequacy of physical resources for successful implementation of CBC in Tharaka Nithi County. The results presented in frequencies and percentages are shown in Table 5.

Table 5: Teacher Responses on Adequacy of Physical Resource.

Physical Resource	VA		A		NO		I		VI		Total
	F	%	F	%	F	%	F	%	F	%	%
Classrooms	22	10.1	90	41.3	14	6.4	73	33.5	19	8.7	100
Furniture	18	8.3	68	31.2	17	7.8	96	44.0	19	8.7	100
Playground	27	12.4	84	38.5	18	8.3	70	32.1	19	8.7	100
Teaching/Learning Aids	5	2.3	48	22.0	19	8.7	119	54.6	27	12.4	100
Laboratories	5	2.3	10	4.6	24	11.0	79	36.2	100	45.9	100
Land	19	8.7	85	39.0	25	11.5	65	29.8	24	11.0	100
Offices	20	9.2	70	32.1	20	9.2	87	39.9	21	9.6	100
Textbooks	23	10.6	115	52.8	13	6.0	58	26.6	9	4.1	100
Reference books	13	6.0	70	32.1	19	8.7	87	39.9	29	13.3	100
Computers	9	4.1	36	16.5	18	8.3	100	45.9	55	25.2	100
Computer rooms	8	3.7	20	9.2	16	7.3	92	42.2	82	37.6	100
Music rooms	3	1.4	11	5.0	14	6.4	75	34.4	115	52.8	100
Toilets	23	10.6	77	35.3	16	7.3	73	33.5	29	13.3	100
Water	20	9.2	95	43.6	13	6.0	65	29.8	25	11.5	100
Electricity	34	15.6	99	45.4	17	7.8	39	17.9	29	13.3	100
Library	5	2.3	16	7.3	13	6.0	85	39.0	99	45.4	100
Workshops	3	1.4	10	4.6	23	10.6	81	37.2	101	46.3	100
Bookstores	4	1.8	32	14.7	11	5.0	90	41.3	81	37.2	100
Nutritional laboratories	1	0.5	5	2.3	20	20.0	68	31.2	124	56.9	100

VA=Very Adequate; A=Adequate; NO=No Opinion; I=Inadequate; VI=Very Inadequate

Table 5 shows that the majority of the respondents (51.4%) believe their classrooms were suitable for implementing CBC in an effective way, while 42.2% opined that classrooms were inadequate for implementing CBC effectively. According to the findings, most schools have ample classroom space. However, the findings disagree with Nturibi (2015) who found that classrooms in the Ruiru location were overcrowded, meaning there was insufficient and more classrooms were needed. Regarding the adequacy of furniture for the effective implementation of CBC majority (52.7%) of the respondents said that furniture was inadequate for the effective implementation of CBC, while 39.5% of the respondents reported that the furniture was adequate. Teachers' findings on this aspect correlate with the head teacher's findings that furniture was inadequate in public primary schools. The results reveal that majority (50.9%) of the respondents point out that playground was adequate for successful implementation of CBC, while 40.8% reported that the playground was inadequate. The findings postulate that playground was sufficient in public primary schools. This finding was in harmony with Hwande and Mpofu (2017) who observed that 100% of the schools had adequate sport fields.

Most of the respondents (77.0%), when asked if teaching and learning tools were adequate for the effective implementation of CBC, answered in the negative, while 24.3% asserted that teaching and learning aids were adequate. The findings conclude that teaching and learning materials were insufficient to successfully implement competence based curriculum. The findings concur with Mugabo, Ozawa and Nkundabakura (2021) who observed that there was insufficient teaching and learning resources which affected effective implementation of CBC negatively. As a result, suitable teaching and learning resources must be provided in public primary schools. There were 82.1% of the respondents who reported that laboratories were inadequate. In contrast, 6.9% of the respondents reported that the laboratories were adequate. The findings of the current study concur with Wambua and Waweru (2019) argument that schools had inadequate laboratories, which is a critical physical resource for effective implementation of CBC. The findings also agree with the sub county directors of education who induced that laboratories were not adequate for effective implementation of competence based curriculum in Tharaka Nithi County.

From the study 47.7% of the respondents stated that there was adequate land for implementing CBC effectively. In contrast, 40.8% of the respondents note that land was inadequate for CBC implementation effectively. Space is crucial in nurturing talents among the learners, playground is required for sports activities and agricultural land for learner's agricultural plots are need, thus, adequate land in all public primary schools is a prerequisite for effective implementation of competence based curriculum. Furthermore, sub county directors of education confirm that there was ample space for public primary schools, and one of them even claimed that there was excess land especially in the two Tharaka Sub Counties and Igamba Ng'ombe sub County. Regarding the adequacy of offices for the effective implementation of CBC majority (49.5%), of the respondents reported that offices were not adequate. This differs from 41.3% of the respondents who stated that offices were adequate for implementing CBC effectively. Teachers requires adequate space for preparations, hence, inadequate offices could affect teacher's moral thus, killing their motivation that could lead to poor preparation thus, affecting negatively CBC implementation. On sufficiency of textbooks for the effective implementation of CBC, majority (63.4%) of the respondents opined that textbooks were adequate for the effective implementation of CBC. Contrary to 30.7% who said that textbooks were inadequate. The findings induced that text books were adequate in public primary schools a position supported by head teachers. These findings disagree with Ondimu (2018), who contend that there were delays in the publishing and distribution of textbooks significantly impacted the effective implementation of CBC. On the adequacy of reference books for the effective implementation of CBC majority (53.2%) of the respondents reveal that reference books were inadequate. However, 38.1% of the respondents averred that reference books were adequate

On the aspect of availability and adequacy of computers for the efficient execution of CBC, most respondents (71.1%) claim that computers were insufficient. However, (20.6%) of the participant claim that computers were enough. The current findings are in harmony with Ngeno (2021) establishment that computers were inadequate in most of public primary schools which was a challenge to effective CBC implementation. This argument is supported by TSC sub county directors who observed that only few computers are found in schools which are not adequate for teaching and learning purposes. To revert this situation a study by Khan, Shah and Ullah (2013) in Pakistan recommend setting up a special fund to provide computers to school and to mobilize the local community and donors for computers funding purposes. Further, on the adequacy of computer rooms for effective implementation of CBC majority (79.8%) of the respondents induced that they were inadequate. However, 12.9% of the respondents noted that computer rooms were adequate. The findings of the current study correlate with Hwande and Mpofu (2017) observation that 90% of the schools did not have computer rooms. For effective implementation of CBC there is need to have sufficient computer rooms in all public primary schools.

More so, the study found that music rooms were insufficient for effective implementation of CBC. Majority (87.2%) of the respondents stated that music rooms were inadequate. A small percentage (6.4%) of the respondents asserted that music rooms were adequate for the effective implementation of CBC. Music skills is one of the CBC competencies that need to be infused to learners thus, necessitating the provision of music rooms. \The results show a slight majority (46.8%) of the respondents induced that toilets were inadequate while 45.9% indicate that toilets were adequate. Sufficient toilets facilities are necessary for conducive teaching and learning environment. In terms of the adequacy of water for the effective implementation of CBC majority (52.8%) of the respondents averred that water was adequate for the effective implementation of CBC. Contrary, 41.3% of the respondents indicated that water was not adequate The findings indicated that most of public primary schools have adequate water supply. Moreover, majority (61.0%) of the respondents opined that electricity was adequate for the effective implementation of CBC compared to 31.2% of those who indicated that electricity was inadequate. Most public schools have power connectivity according to the study's findings. This is affirmed by Ngeno (2021) who averred that most public primary schools were connected with electricity. Moreover, the findings agree with Mwendwa (2018) establishment that 79.7% of public primary schools were connected with electricity in Kitui County. Electricity connectivity in public primary schools is very vital because electricity is required in running ICT related programmes, lighting and also for security purposes.

The study found that libraries in public primary schools were inadequate for effective implementation of CBC. Majority (84.4%) of the respondents stated libraries were inadequate. A small number of the respondents 9.6% stated that the libraries were very adequate. These findings are in concurrence with Nturibi (2015) postulation that schools had inadequate libraries for effective implementation of CBC. In order to implement CBC successfully, public elementary schools should have libraries that are well equipped. On the adequacy of workshops in schools for effective implementation of CBC majority (83.5%) of the respondents stated that workshops were inadequate, However, 7.0% of the respondents stated that workshops were adequate. Competence based curriculum emphasize on nurturing learner's talents therefore, adequate workshops should be provided in all public primary schools. Relating to the adequacy of bookstores for the effective implementation of CBC majority (78.5%) of the respondent's stated that the bookstores were inadequate, However, 16.5% of the respondents averred that bookstores were adequate. The findings indicated that bookstores are inadequate in majority of public primary schools. For effective implementation of CBC bookstores need to be provided sufficiently. The study findings reveal that nutritional laboratories for effective implementation of CBC were inadequate. Majority (88.1%) of the respondents opined that nutritional laboratories were inadequate. However, 2.8% of the respondents indicated that nutritional laboratories were adequate respectively. The findings concur with Nturibi (2015) observation that home science rooms were inadequate in majority of public primary schools. According to sub county directors of education nutritional rooms are not available in public primary schools, teachers convert any available room into a nutritional room. Insufficient nutritional laboratories negatively affect effective implementation of competence based curriculum since learners are expected to infuse home science skills in their learning process

The study found that physical amenities such laboratories, libraries, workshops, bookstores, and nutritional laboratories are insufficient in Tharaka Nithi County's public elementary schools. The findings of the current study agree with Amadi, Ezeugo and Chinyere (2019) observations that inadequacy of physical facilities affect successful implementation of competence based curriculum since both teachers and students need adequate physical facilities for meaningful teaching and learning to take place. In a similar vein, Chaudbary (2015) found that the quality and sufficiency of physical resources and suitable facilities have a significant impact on the efficient implementation of CBC in her research on the determinants influencing curriculum implementation for students. With enough physical resources, teaching and learning may take place effectively.

Regression of Adequacy of Physical Resource and Effective Implementation of CBC

The objective of this study was to assess the relationship between the adequacy of physical resources and effective implementation of a Competence Based Curriculum in Tharaka Nithi County, Kenya. To assess the relationship between the adequacy of physical resources and effective implementation of competence based curriculum the following hypothesis was tested.

Ho: There is no statistically significant relationship between the adequacy of physical resources and the effective implementation of a Competence Based Curriculum in Tharaka Nithi County, Kenya. Head teachers' results are shown in Table 6.

Table 6: Linear Regression Coefficient for Head Teachers Responses

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	2.417	.153		15.834	.000	2.114	2.719
	A.P.R	.370	.066	.475	5.578	.000	.239	.502

Table 6 summarizes the head teachers' linear regression coefficient results. The regression intercept labeled 'constant' took a value of 2.417. It represents the predicted value of independent variable when the independent variable has a zero value. The regression slope or unstandardized coefficient (B in SPSS) takes the value 0.370 for physical resources. These was the amount by which the dependent variable change for an increase of 1 unit in independent variable. Therefore, an increase in physical resources will lead to a 37.0 % increase in the effective implementation of the CBC. For adequacy physical resources, the t-value is 5.578 at a p-value of 0.00, which is less than 0.05. The null hypothesis is rejected. Because of this, there is a statistically significant link between the sufficiency of physical resources and the successful adoption of a competence based curriculum in Tharaka Nithi County. The researcher further performed linear regression coefficient analysis for teachers coded data. Teachers findings are presented in Table 7.

Table 7: Linear Regression Coefficient for Teachers Responses

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	19.019	.801		23.757	.000	17.441	20.596
	a.p.r	.274	.070	.259	3.934	.000	.137	.412
a. Dependent Variable: Effective CBC								

Table 7 shows linear regression coefficient results for teachers, the regression intercept labeled constant' took a value of 19.019. It represents the predicted value of independent variable when the independent variable has a zero value. The regression slope or unstandardized coefficient (B in SPSS) takes the value 0.274 for physical resources. These was the amount by which the dependent variable change for an increase of 1 unit in independent variable. Therefore, an increase in physical resources will lead to a 27.4 % increase in the effective implementation of the CBC. For adequacy physical resources, the t-value is 3.934 at a p-value of 0.00, which is less than 0.05. The null hypothesis is rejected. Therefore, in Tharaka Nithi County, there is a statistically significant correlation between the sufficiency of physical resources and the successful implementation of a competence based curriculum.

Study conclusions show that the adequacy of physical resources was positive and significant with the effective implementation of curriculum based curriculum as of the observation with head teachers and teachers. The results support Ngeno's (2021) assertion that physical infrastructure had a moderately beneficial impact on the adoption of CBC. Respondents, concede that adequate availability and use of physical and material resources enhance better learning and teaching, conceptualized as effective implementation of CBC in the study. This argument is advanced by Usman (2015), who noted physical resources have a central role in realizing the achievement of educational objectives and goals, which in this case is having a successful rollout of competence based curriculum.

Correlation Analysis of Physical Resources and Effective Implementation of Competence Based Curriculum

To determine whether there was a relationship between the variables individually, the researcher performed the Pearson Moment Product correlation test. The head teachers' and teachers result are presented in Table 8 and 9.

Table 8: Correlation for Head Teachers.

Correlations[b]			
		Effective CBC	A.P.R
Effective CBC	Pearson Correlation	1	.475**
	Sig. (2-tailed)		.000
A.P.R	Pearson Correlation	.475**	1
	Sig. (2-tailed)	.000	
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 8 summarizes head teachers' findings on the correlation between adequacy of physical resources and effective implementation of competence based curriculum. The Pearson Moment Product correlation coefficient gave

a value of 0.475, which was significant at 0.05 level of significance because its p value was 0.000. The information indicates that there is a positive relationship between effective competence based curriculum implementation and the adequacy of the physical resources. The researcher further computed correlation coefficient from the teachers' data. Table 9 presents the findings.

Table 9: Correlation for Teachers

Correlations			
		Effective CBC	a.p.r
Effective CBC	Pearson correlation	1	.259**
	Sig. (2-tailed)		.000
	N	218	218
a.p.r	Pearson Correlation	.259**	1
	Sig. (2-tailed)	.000	
	N	218	218
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 9 shows the correlation between adequacy of physical resources and effective implementation of CBC. The Pearson Moment Product correlation coefficient established a value of 0.259, which was significant at 0.05 level of significance because its p value was 0.000. This indicates a positive relationship between effective CBC implementation and the adequacy of the physical resources. The findings from the head teachers and teachers are correlated by a study finding by Ngeno, Mweru, and Mwoma (2021) conducted in Kericho County public primary schools. The study established a correlation between the availability of physical resources and effective implementation of CBC. The head teachers had a correlation coefficient of 0.475 at a p-value of 0.000 while the teachers had a correlation coefficient of 0.259 at a p-value of 0.000, which were both found statistically significant.

VII. Conclusion

The findings conclude that school furniture, teaching and learning materials, laboratories, offices, reference books, computers, computer rooms, music rooms, libraries, bookstores and nutritional laboratories were insufficient in public primary schools in Tharaka Nithi County. However, classrooms, playground, textbooks, toilets, water and electricity were adequate. The study conclude that adequate physical resources were not availed before the actual implementation of the competence based curriculum. The study recommends provision of adequate physical resources in public primary schools to ensure successful implementation of the competence based curriculum.

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